

REMARKS

Claims 1-31 were pending. Claims 1, 4, 17, 18, 20 and 29 have been amended. Claim 15 has been cancelled, and claims 32-39 have been added. After entry of the amendment, claims 1-14 and 16-39 should be pending.

Section 102 Rejections

Claims 1-3, 5, 7-10, 12, 13, 15, 17, 20, 22-25 and 27-31 were rejected as anticipated by U.S. Patent 5,948,204 ("Maveety"). Claims 1-8, 12, 13, 15-17, 20-23 and 27-31 were rejected as anticipated by EP 0 747 167 A2 ("Shendon"). Claims 11 and 26 were rejected as obvious over Maveety without a secondary reference. Claims 9-11, 14, 18, 19 and 24-26 were rejected as obvious over Shendon without a secondary reference.

Claim Amendments

Claim 1 has been amended, and claims 37-39 have been added, to recite that "the lower portion lacks any aperture from the top surface to the bottom surface of the lower portion". Support for this amendment may be found in Figures 2 and 3, which illustrate the lower portion without any apertures from the top surface to the bottom surface, and in the described implementations for joining the lower portion to the upper portion, e.g., an adhesive layer, which permit connection without apertures through the lower portion.

Claims 17 and 29 have been amended, and new claim 34 as been added, to recite a method in which "the lower portion is joined to the upper portion and the retaining ring is secured to the base such that the retaining ring is removable as a unit from the base." Support for these amendments may be found in the at page 8, lines 2-3, which notes that the retaining ring 194 is secured by bolts 194, by page 8, by the described implementations for joining the lower portion to the upper portion, and by Figures 2 and 3.

Support for new claims 32-33 can be found at page 9, lines 10-12.

New claims 35 and 36 recite methods in which “the retaining ring is removable without disassembly of the carrier head.” Support for these amendments may be found in the at page 8, lines 2-3, which notes that the retaining ring 194 is secured by bolts 194, by page 8, by the described implementations for joining the lower portion to the upper portion, and by Figures 2 and 3.

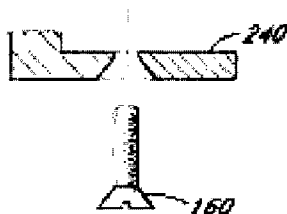
The Examiner is reminded that compliance with 35 U.S.C. 112 requires only that the applicant's disclosure, taken as a whole, convey to persons of ordinary skill that the inventor was in possession of the claimed invention at the time of filing. See *In re Wilder*, 736 F.2d 1516, 1520 (Fed. Cir. 1984). The content of the drawings may also be considered in determining compliance with the written description requirement. *In re Kaslow* 707 F.2d 1366, 1375 (Fed. Cir. 1983). In some cases, the *drawings alone* may constitute an adequate description. See *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1564 (Fed. Cir. 1991).

Various other minor amendments have been made in claims 1, 4, 18 and 20 to correct typographic errors, antecedent basis and claim dependency.

Claims 1-14, 16, 32-35 and 39

Claim 1 has been amended to recite that “the lower portion lacks any aperture from the top surface to the bottom surface of the lower portion”.

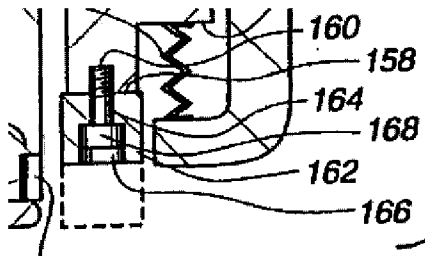
In contrast, in Maveety, the wafer carrier ring 240 includes apertures (not numbered) through the wafer carrier ring, as shown in Figure 2:



The eight wear ring screws 160 are inserted from the bottom side through these apertures to secure the wafer carrier ring, as well as the seal ring 210, to the wafer carrier plate 260 (column 2, lines 55-58).

Since Maveety does not teach a retaining ring in which the lower portion lacks any aperture from the top surface to the bottom surface, claim 1, and the claims depending therefrom, cannot be anticipated by Maveety.

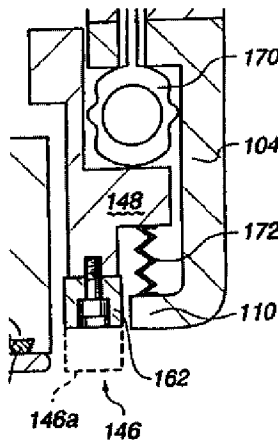
Similarly, in Shendon, the wafer perimeter ring 162 includes holes 164 and counterbores 166 that provide apertures through the wafer perimeter ring, as shown in Figure 4:



Retaining ring screws 168 are placed through the holes 164 and counterbores 166 and threaded into threaded holes 160 in the backing ring 148 to hold the retaining ring 162 to the backing ring 148 (column 10, lines 26-33).

Since Shendon does not teach a retaining ring in which the lower portion lacks any aperture from the top surface to the bottom surface, claim 1, and the claims depending therefrom, cannot be anticipated by Shendon.

In addition, Shendon fails to teach a retaining ring in which a top surface of the upper portion of the retaining ring is fixed to and abutting the base. Rather, as shown in Figure 4, a retaining ring assembly 146 does not touch either the housing support plate 102 or the descending wall 104, and is free to move vertically relative to the housing support plate 102 and the descending wall 104.



Moreover, the Examiner appears to associate Shendon's retaining ring assembly 148 with the claimed "retaining ring". Applicant does not admit that this is a proper association. Applicant submits that a person of ordinary skill in the art would consider only the "retaining ring" 162, not the retaining ring assembly 146, to constitute a retaining ring.

A problem with securing the wafer carrier ring 240 and wafer perimeter ring 162 to the wafer carrier plate 260 and backing ring 148, respectively, as shown in Maveety and Shendon, by inserting screws from the bottom side through apertures, is that slurry can be captured in the spaces between the screws and aperture walls. This slurry can dry and become a source of particulates that cause scratching and defects on the wafers.

Since neither Maveety nor Shendon teach a retaining ring in which the lower portion lacks any aperture from the top surface to the bottom surface, their combination cannot teach such a retaining ring.

Therefore, Applicant submits that claim 1 is patentable over Maveety and Shendon.

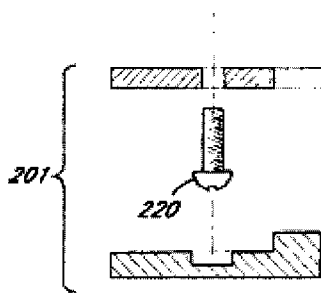
Claims 2-14, 16 and 32-35 depend from claim 1 and should be allowed for similar reasons.

Claim 39 is a new independent claim that recites that "the lower portion lacks any aperture from the top surface to the bottom surface of the lower portion." Claim 39 should be patentable over Maveety and Shendon for the reasons set forth above.

Claims 17-31 and 36-38

Claim 17 has been amended to recite methods with “the lower portion joined to the upper portion and the top surface configured such that the retaining ring is removable as a unit from the base.” Similarly, claim 29 has been amended, and new claim 34 as been added, to recite a method in which “the lower portion is joined to the upper portion and the retaining ring is secured to the base such that the retaining ring is removable as a unit from the base.”

In contrast, in Maveety, the ring assembly 201 is not removable as a unit from the carrier plate 260. This is because the seal ring 210 and wafer carrier ring 240 are each secured to the carrier plate 260 with separate screws 220 and 160, respectively, and the screw 220 that secures the seal ring 210 to the carrier plate 260 is hidden behind wafer carrier ring 240 once the ring assembly 201 is assembled.



In order to remove the ring assembly 201, the wafer carrier ring 240 must be separately removed to expose the screw 220, and then the seal ring 210 can be removed. Thus, in Maveety, the seal ring 210 and wafer carrier ring 240 are only removable as separate pieces, not as a unit.

Since Maveety does not teach a retaining ring removable as a unit from the base, claims 17 and 29, and the claims depending therefrom, cannot be anticipated by Maveety.

Shendon fails to teach a retaining ring in which a top surface of the upper portion of the retaining ring is fixed to and abutting the base. Rather, as shown in Figure 4, a retaining ring assembly 146 does not touch either the housing support plate 102 or the descending wall 104, and is free to move vertically relative to the housing support plate 102 and the descending wall 104.

Moreover, the Examiner appears to associate Shendon's retaining ring assembly 148 with the claimed "retaining ring". Applicant does not admit that this is a proper association.

Applicant submits that a person of ordinary skill in the art would consider only the "retaining ring" 162, not the retaining ring assembly 146, to constitute a retaining ring.

Since Shendon does not teach a retaining ring in which a top surface of the upper portion of the retaining ring is fixed to and abutting the base, or is configured to do so, claims 17 and 29, and the claims depending therefrom, cannot be anticipated by Shendon.

Claims 18-28, 30-31 and 36-38 depend from claims 17 and 29, and should be allowed for similar reasons.

Claims 35-36

New claims 35 and 36 recite that the carrier head is configured such that the retaining ring is removable without disassembly of the carrier head.

In addition to the reasons for patentability for claims 35 and 36 over Shendon as set forth above, Shendon also fails to teach a carrier head configured such that the retaining ring is removable without disassembly of the carrier head. In Shendon, the backing ring 148 is trapped between the housing support plate 102 and the descending wall 104. In order for the ring assembly 146 to be removed, the descending wall 104 would need to be disassembled from the support plate 102. For this additional reason, claims 35 and 36 cannot be anticipated by Shendon.

Applicant hereby petitions under 37 C.F.R. §1.136 for a 3 month extension of time.

The total fees in the amount of \$1,570 which includes the extension fee in the amount of \$1,020 and the excess claims fee in the amount of \$550 are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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